

Title (en)

Method and apparatus for inspecting the surface of substrates

Title (de)

Verfahren und Vorrichtung zum Prüfen der Oberfläche von Substraten

Title (fr)

Procédé et appareil permettant l'inspection de la surface de substrats

Publication

**EP 1333275 A2 20030806 (EN)**

Application

**EP 02028989 A 20021227**

Priority

- JP 2002003449 A 20020110
- JP 2002364400 A 20021216

Abstract (en)

In a substrate inspecting apparatus comprising a projecting section (4) in which light sources (8), (9) and (10) for emitting colored lights of R, G and B are provided in directions having different elevation angles, one or two color components which is/are greater than the mean value of the intensities of color components of red, green and blue is/are extracted for an inspecting region including a soldered portion. Inclined surfaces adapted to the light sources (8), (9) and (10) are converted into monochromatic shaded images of red, green and blue by the extraction processing, respectively. Furthermore, a boundary position between the inclined surfaces adapted to the light sources (8) and (9) are converted into shaded images having a mixed color of red and green and the boundary position between the inclined surfaces adapted to the light sources (9) and (10) is converted into a shaded image having a mixed color of green and blue.

IPC 1-7

**G01N 21/88**

IPC 8 full level

**G01B 11/24** (2006.01); **G01N 21/88** (2006.01); **G01J 3/08** (2006.01); **G01J 3/46** (2006.01); **G01N 21/956** (2006.01)

CPC (source: EP US)

**G01N 21/8806** (2013.01 - EP US); **G01N 21/95684** (2013.01 - EP US)

Cited by

EP1568985A3; EP3767938A4; CN108827971A; FR2920227A1; WO2004038394A1; WO2009050349A3

Designated contracting state (EPC)

DE GB IT

DOCDB simple family (publication)

**EP 1333275 A2 20030806**; **EP 1333275 A3 20040407**; **EP 1333275 B1 20080827**; CN 1195978 C 20050406; CN 1431482 A 20030723; DE 60228542 D1 20081009; JP 2003270173 A 20030925; JP 3551188 B2 20040804; TW 200301817 A 20030716; TW 583389 B 20040411; US 2003169418 A1 20030911; US 6947151 B2 20050920

DOCDB simple family (application)

**EP 02028989 A 20021227**; CN 03103467 A 20030109; DE 60228542 T 20021227; JP 2002364400 A 20021216; TW 92100289 A 20030108; US 33802003 A 20030108